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НАВЧАЛЬНО-МЕТОДИЧНИЙ ПОСІБНИК З РОЗВИТКУ НАВИЧОК ЧИТАННЯ ТА ГОВОРІННЯ

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для студентів ОКР «Бакалавр»
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ПЕРЕДМОВА

Методичний посібник з розвитку навичок читання та говоріння на ІІ етапі навчання англійської мови.

Мета посібника – формування у студентів навичок здобування, розуміння, опрацювання та репродукування інформації з оригінальних англомовних текстів за фахом.

Посібник складається з шести розділів, тематика яких відповідає програмі навчального курсу дисципліни.

Кожний розділ містить систему лексико-комунікативних вправ, спрямованих на засвоєння мовних елементів фахового стилю. Вправи містять проблемні питання, комунікативні ситуації, тематичні завдання.

Обсяг кожного розділу відповідає нормам одного завдання з самостійного позааудиторного читання для студентів немовних вузів.

Додаток посібника містить:

- словник лексичних одиниць та абревіатур;
- глосарій агрономічних термінів;
- довідник хвороб та шкідників сільськогосподарських рослин.

Методичний посібник призначено для студентів факультетів агрономічних спеціальностей вищих навчальних закладів денної, заочної та дистанційної форм навчання.

Unit 1
Crop industry. Rotation

Plants are autotrophic organisms, forming the base of all food chains. They are important not only for food but also in maintaining the oxygen levels of our atmosphere as a byproduct of photosynthesis.

Plants provide all of our food through the products they produce, either directly as plant products (as in grains, fruits, and vegetables), or indirectly through animal products (meat, milk, eggs).

Plants also contribute to our quality of life through shaping our environment as natural vegetation or ornamental species, through making play areas more enjoyable (turf), and recreation activities (gardening).

Plants provide us with such things as: food, fossil fuels, medicines, building shelters, fibers, beverages, perfumes, dyes, spices, soaps.

Crop plants are any plants grown for economic reasons. This involves any part of a plant: seeds, roots and tubers, leaves, fruit, stems, and sap. Agriculture uses plants to produce food, fiber, or recreational opportunities.

Crop Selection

In order to select a particular crop and variety to grow, many factors must be considered. Selection is hardly a simple process, and involves experience, current information, and maybe a bit of luck.

Plant types should be:

- suited to the climate of a particular area
- resistant to disease or plant pests in the region
- appropriate to the rotation sequence for the field
- suitable to the producers needs, equipment, and time schedule
- matched to the market demand at the time

A general key to determine climate suitability of certain crops and varieties is the days required for a plant to mature. This time is the interval between seeding and crop maturity (ready to be swathed).

The average (and lowest) number of frost-free days for a particular crop production area, along with knowledge of the type of spring in a particular growing season are strong indicators of the type of crops able to be grown. A wet, late, and perhaps cool spring in areas would encourage selection of varieties or crops which require fewer days to maturity (maybe varieties of barley or Polish canola).

Expected yields are a concern to any farmer. Producers must weigh a loss in yield against a gain in quality, or hardiness (or vice versa) in order to get the most benefit from their land. In order to accomplish this, producers must know the specific conditions of their growing area, their market demands, and their own goals in order to make appropriate decisions.

Preparing the soil

It is most unusual to find a plot, where the soil is in exactly the right condition to grow top quality crops. Sometimes it is too heavy, and badly drained, so that surplus water is left around the roots of the plants in winter which will cause them to decay. On the other hand if the soil is sandy, it is quite likely that during the summer months it will be unable to hold the amount of water that the crops need to make vigorous growth. Some soils lack lime, others have too much of it; both these conditions must be corrected.

Soil Testing

As a general rule, soils can be divided into four main groups. There is clay, containing about one third clay particles; rich loam, which has no more than one fifth clay particles; light, of which about three quarters is sand; and calcareous, which has a very high chalk or lime content. The first requirement is to discover the pH value: this is the hydrogen ion concentration of moisture in the soil, which is responsible for the degree of acidity or alkalinity.

Take small quantities of soil from five or six different places and mix them in a bucket to give an average reading; there can be quite wide variations in pH in even quite a small plot. If the soil to be tested is wet, let it dry out a bit; a crumbly texture is best. Fill an upright test tube half way to the top with some of the soil, add a small amount of barium sulphate, then fill it almost to the top with distilled water and add a few drops of the indicator. Put a rubber stopper on the end of the tube, shake up the contents and allow them to settle, and then compare the colour to those on the chart.

Where the soil shows a lime deficiency, treat it with 3kg of hydrated lime per 9sq m of ground for each hydrogen ion value. Most crops prefer well limed soil in winter.

Types of Soil

Clay

These drain badly because the particles are too heavy to let water through. In extreme cases, where water lies on the surface in puddles, it may be necessary to lay land drains. Normally adding coarse sand is sufficient and equal quantities of peat or compost by bulk. If you repeat this treatment every year, a

very good loam soil will result. Add some humus every year to prevent the soil returning to its heavy clay state.

Sandy soils
The problem here is that the soil drains too fast, and the answer is to dig in as much water retaining material as possible. Peat, leaf-mould, compost or manure should be dug in every year — 8 to 15cm at first, less as the soil begins to improve.

Loam
It is lucky to have a good loam soil – do not let it deteriorate. 5cm of humus each year will replace the goodness that has been taken out of it.

Subsoil
The top layer of the soil is topsoil. If you start to dig down, it will begin to change colour, and this area is called the subsoil. This should not be disturbed, and if it has to be, keep it separate from the topsoil. If you do not have a sufficient depth of topsoil to grow all the crops that you want — 20cm is usually adequate — it can only be built up slowly: a further 5cm dug in each year, turning up 5cm of subsoil at the same time. Do not try to convert a greater amount of the subsoil in one season, because it simply cannot be done.

Adding Lime to the Soil
Apart from its ability to correct the acidity of soil, lime has the power to release the various plant foods already in the soil, and also to improve the physical condition of the soil by breaking up the clay particles. Without lime, a heavy soil will become still heavier in the winter rains, and so deprive the plant roots of the oxygen they need.

Lime has a tendency to be washed down by rain, and where it is used in hydrated form it should be applied to the surface in mid-winter after the ground has been dug and the surface left in a rough condition, to be broken down by wind and frost.

Soil may also be tested for nitrogen, potash and phosphorus deficiencies so that the correct requirements of each individual crop can be supplied in the right amounts. If nitrogen is lacking, the plants will have their growth stunted, and will look sickly; if there is not enough potash, there will be a lot of soft lush growth which is very weak and will not stand cold or resist disease, and if there is not enough phosphorus the plant roots will not be able to develop properly.

The Value of Humus
Humus may take the form of straw or decayed leaves that have been broken down (composted) by an activator. Peat is also useful, but as it is slightly acid, lime should be added as well. Peat can be used to improve all types of soil and has a very beneficial action on roots, allowing them to grow unrestricted. Straw composted with an activator also provides both humus and nutrients.

Rotation

Rotational cropping should be practiced in even the smallest vegetable garden. This will help prevent the pests and diseases which attack one particular group of plants from building up in the soil. In some cases this build up can only be reduced; if you are unfortunate enough to have club root in your soil, this fungus can live for twenty years in the ground which is more than any rotational system can eradicate.

If you practice rotation, a balance will be maintained between the various plant foods, and the soil will be less likely to build up an adverse reaction to any particular plant. As well as this, the different methods of cultivation followed for each plant will make certain that the soil is well dug and properly treated to a considerable depth, and this will all help to restore and maintain a healthy balance. The soil will be opened up and aerated, the bacteria will be able to obtain the supplies of oxygen which they need to convert the fertilizers and manure which the gardener will add into a form in which the plants can absorb them.

Making the Most of the Soil

The correct rotation of cropping will bring about the most economical use of the vegetable plot because one will need fewer fertilizers. As an example, cabbages and cauliflowers take large amounts of nitrates from the soil, while the legumes (peas and beans) return nitrogen to the soil — their roots have nodules which 'fix' the nitrogen in the earth. The brassicas (cabbages, cauliflowers, sprouts, broccoli, and kale) should therefore follow the peas and beans. Salads can be grown as 'catch crops' in any of the sections.

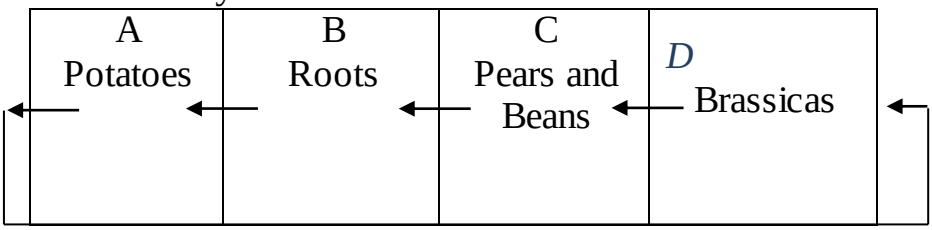
To keep the soil in good condition you must ensure that it does not have a deficiency of lime, but whereas some crops require large quantities of lime, others such as potatoes do best in a slightly acid soil. If there is not enough lime, the inert plant foods stored in the soil will not be able to be released for the growing crops to take up and all the manure or garden compost that you may possibly add will be of little use. Rotation helps constantly to correct the various imbalances.

Four Year Rotation

If there is enough space, it is better to follow a four year rotational plan rather than a three year one, and if you are going to grow main crop potatoes, a four year plan is really essential. If your plot is being cultivated for the first time, a potato crop will be of great value: they clear the ground in a way that no other crop can equal, and by moving them around the vegetable garden, the plot will be kept reasonably free of weeds.

When planting the potatoes, manure the ground first. A heavy application of manure given to the potatoes will mean that only quite small quantities will need to be given to the following crops during the next three years before that particular patch of land is used for potatoes again. Follow the potatoes with root crops, the root crops with legumes, which will increase the nitrogen content of the soil, and this will benefit the fourth and final crop from the plot, the brassicas.

Table 1 Four-year rotation



Questions to review

1. What kind of organisms are the plants?
2. Why do we use plants?
3. What should we take on account selecting a crop?
4. What types of soil are there?
5. What type of soil is the best for cultivation? Why?
6. What types of soil prevail in your region?
7. Why lime is so important for the soil?
8. Are peat and humus valuable for crop plants? Why?
9. What does a soil healthy balance mean?
10. What kind of role do nodules play in rotation?
11. What kind of crops "like" to take nitrates from the soil?
12. What is rotation?

Tasks to sum up

Task 1 Complete the following sentences.
Lack of time in the soil can lead to …
Lime in the soil can …

Task 2 Make up four-year rotation table for your climatic region.

Task 3 Sum up:

1. Give instructions for soil testing.
2. Compare types of soil.
3. Right rotation advantages.

Task 4 Discuss the following:

- Importance of crop industry for mankind
- The best type of soil for crop production
- Nutritional content of soil

Use the following words, phrases and terms in discussion

food
maintaining the oxygen levels
fossil fuels
fibers
spices
yield
adding coarse sand
add humus
to dig in
peat
leaf-mould
compost
manure
the acidity of soil
lime
nitrogen
potash
phosphorus